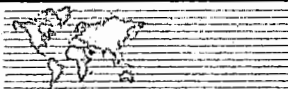


C

APPENDIX F
PRE-EXCAVATION SOIL SAMPLING PLAN

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MEMORANDUM

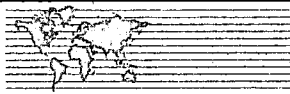
Date: January 27, 2014 **Project No.:** 073-6009-100 Phase 521
To: Golder Field Team: Kristin Long and Meagan Brown **Company:** Golder Associates Inc.
Project Chemist – Kristin Nuriye
From: Steve Anderson and Joe Gormley
cc: Mark Haney, Dave Walsh
RE: PRE-EXCAVATION SOIL SAMPLING PLAN – SOUTH PLANT

1.0 INTRODUCTION

This internal memorandum is to summarize the directions provided to the field staff for pre-excitation soil sampling at the Trinity South Plant in Greenville, Pennsylvania (Site). The work will be performed in general accordance with the procedures in the *Revised Cleanup Plan, South Plant Site* (Cleanup Plan) and the *Final Revised Remedial Investigation Work Plan, North and South Plants* (RI Work Plan). Information found in the *Revised Remedial Investigation (RI) Report, South Plant* (RI Report) was also used in developing this sampling program.

The scope of work presented herein is for soil sampling and analysis at the following Site cleanup areas (refer to Figures 1, 2, and 3):

- General Downgradient SW2 Area (SW2 Area)
 - Located along the boundary fence in the southwest of the Site
 - Metals-impacted soil, particularly lead
 - Excavation of soil currently planned to 8-feet below ground surface (ft-bgs)
- Former Pickling Area (Pickling Area)
 - Located in a former manufacturing building south of both the Main Office Building and the Maintenance Building
 - Metals, VOC, and SVOC impacted soil
 - Includes 1,2,4-trimethylbenzene (1,2,4-TMB) and 1,3,5-TMB, both of which are not on the typical 8260 VOC screen
 - Excavation of soil currently planned to 6 ft-bgs
 - A portion of this area has VOC and SVOC impacted soil planned for off-Site disposal
 - Remainder of this horizon to be pre-conditioned and relocated on-Site to the Disposal Area
- Excavation/pre-conditioning of soil in place currently planned from 6 to 20 ft-bgs
- Former Disposal Area (Disposal Area)
 - Located in the southern area of the Site near Mathay Run



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- Metals-impacted soil, particularly lead
- Excavation/pre-conditioning of soil in place currently planned to 7 ft-bgs
- Additional Site cleanup areas are not addressed in this scope of work

The objective of this fieldwork is to supplement the analytical data presented in the RI Report and further define the lateral and vertical extent of Site cleanup activities (i.e., excavation and pre-conditioning in place) at the SW2 and Pickling Areas. "Continuous" sampling is planned for each borehole. The results may then be used for confirmation sampling.

2.0 SCOPE OF WORK

2.1 Pre-Excavation Sampling

Figures 1, 2, and 3 present the proposed borehole locations for pre-excavation sampling for the following areas:

■ SW2 Area

- 10 perimeter boreholes
 - SW2-S01 through SW2-S10
 - Locations on the western side (SW2-S01 through SW2-S05) should be placed as close as practical to the Site side of the boundary fence
 - Locations on the eastern side (SW2-S08 and SW2-S09) should be placed as close as practical to the adjacent rail road spur but not in the associated ballast
- 4 interior boreholes
 - SW2-S11 through SW2-S14
- Each borehole planned to 10 ft-bgs

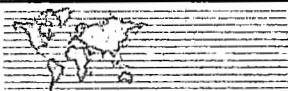
■ Pickling Area

- 10 perimeter boreholes
 - PA-S01 through PA-S10
- 4 interior boreholes around the perimeter of the excavation planned for off-Site disposal
 - PA-S11 through PA-S14
- 2 additional interior boreholes
 - PA-S15 and PA-S16

- Each borehole planned to 22 ft-bgs

■ Disposal Area

- 10 perimeter boreholes
 - DA-S01 through DA-S10



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- 4 interior boreholes
 - DA-S11 through DA-S14
- Each borehole planned to 8 ft-bgs

The proposed sampling locations are spatially distributed around and within each proposed cleanup excavation. The frequency of the sampling locations is based upon requirements found in the Technical Specification for Impacted Soil Excavation & Management (No. 02221) provided in the Cleanup Plan. The proposed depths of the boreholes are based upon the planned depth of cleanup activities in the associated area. The boreholes may need to be advanced deeper than planned based on field observations since defining the vertical extent is an objective. Likewise, if field screening indicates, a reduction in the depth of a borehole may be warranted. Either of these will be done in consultation with Joe Gormley or Steve Anderson.

The proposed borehole locations will be pre-loaded into a GPS for locating in the field. If the location needs to be moved, contact either Joe Gormley or Steve Anderson. After sampling is completed, clearly mark each location for subsequent surveying.

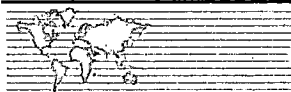
The borings will be advanced using direct push drilling methods (e.g., Geoprobe®) by SJB Services, Inc. (SJB)¹. Soil runs of approximately 4-ft will be collected with sampling tubes (e.g., Macro-Cores®). For each run, a Golder field staff will document the recovery, lithology, and other field observations on field boring logs. These logs will subsequently be converted to gINT® logs.

Each run will be screened using a hand-held X-ray fluorescence device (XRF) for lead readings in at least two locations, one in each half (top and bottom) of the recovered soil. When a run has more than one distinct type of soil, XRF readings will be documented from each layer observed in the sampling tube. If the XRF lead reading is below the action level of 300 mg/L, sample collection can commence (described below).

The action following an XRF reading above the action level will depend on the location of the borehole. If it is either on the perimeter of a planned excavation or the bottom run of the borehole, contact either Joe Gormley or Steve Anderson to discuss potential actions, since the readings may indicate that the borehole does not represent the extent of lead-impacted soil. On the other hand, if an elevated XRF reading is from one of the interior boreholes (and not the bottom run), sampling can commence.

A photoionization detector (PID) will also be used to screen the soil runs. If readings are above an action level of 100 ppm, contact either Joe Gormley or Steve Anderson to discuss potential actions.

¹ Subsurface utility clearance will be performed by the driller in accordance with state regulations.



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Soil samples will be submitted to Pace Analytical Services, Inc. (Pace) for the following analyses with standard turnaround time requested (i.e., 10-days):

- TAL metals, both total and TCLP
- Percent moisture
- Pickling Area locations PA-S11 through PA-S14 will also include:
 - VOCs, including 1,2,4-TMB and 1,3,5-TMB
 - SVOCs

Samples for metals will be collected for each 2-ft depth interval in each borehole at the SW2 and Disposal Areas (two per sampling tube). Based on XRF readings and the borehole location, there may be a reduction of the number of samples collected at a specific location. Authorization from Joe Gormley is required to collect less than five samples at a SW2 borehole and four samples at a Disposal Area borehole.

For the Pickling Area, samples for metals will be collected for each 2-ft interval (two per sampling tube) until 8 ft-bgs (first two runs). Then for the next three runs to 20 ft-bgs, the one sample will be collected from the length of each 4-ft sampling tube. The final sample will be collected from the 20 to 22 ft-bgs run, unless XRF readings indicate that borehole should continue deeper. Authorization from Joe Gormley is required to collect less than eight metals samples at a Pickling Area borehole.

Samples for VOC and SVOC analyses will be collected from Pickling Area boreholes PA-S11 through PA-S14. The SVOC sub-samples will be collected along with the metals samples from the mixing container. However, the sub-sample for VOCs will be collected directly from the sampling tube; it will not be otherwise disturbed, such as placing in the mixing container. The frequency of the VOC samples will be the same as the metals samples described above. However, the specific location in each interval, either 2-ft or 4-ft, will be targeted to the highest PID reading of that interval. All of the parameters will be considered the same sample, and will have the same ID with one entry on the chain of custody.

2.2 Waste Characterization Sampling

A waste characterization sample is required for landfill approval for the disposal of the VOC and SVOC impacted soils in the Pickling Area. This five-point composite sample will be collected from length of the planned 6-ft excavation (the depth may be greater if there are elevated PID readings). This sample needs to represent an area with observed VOC impacts. If PID readings are above the action level in boreholes PA-S11 through PA-S14, the S##-type samples may not be collected since they do not represent the lateral extent of VOC-impacted areas. In that case, a waste characterization sample may



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be collected from one of those boreholes. The sample ID (nomenclature is described below) will be PA-WC1_00_06 (or deeper).

If all four locations PA-W11 through PA-W14 have PID readings below the threshold (thus representing the extent of needed excavation), an additional borehole will be advanced 6 ft-bgs in the vicinity of SB-S9E1 shown on Figure 2. Likewise, the sample will be composited from the 6-ft length (from five separate depth locations) and the ID will be PA-WC1_00_06.

Pickling Area waste characterization soil samples will be submitted to Pace for the following analyses with standard turnaround time requested:

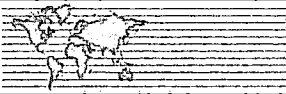
- TCLP VOCs, including 1,2,4-TMB and 1,3,5-TMB
- TCLP SVOCs
- TCLP Metals
- Total PCBs
- Percent moisture

Regardless of the specific borehole location for the waste characterization sample (either of the options described above), the soil collected for VOC analysis will be a grab sample. It will be collected from the interval with the highest PID reading from the same borehole as the other parameters, and will have the same sample ID with one entry on the chain of custody.

2.3 Quality Assurance/Quality Control (QA/QC) Samples

In addition to the primary samples described above, the following quality assurance and quality control (QA/QC) samples will be collected and submitted to Pace for analysis:

- Field duplicate
 - 1 per 20 primary samples, per analyte
 - "D" will be appended to the end of the primary sample ID
- Matrix spike/matrix spike duplicate
 - 1 each per 20 primary samples, per analyte
 - "MS" and "MSD" will be appended to the end of the primary sample ID
- Rinsate blanks
 - 1 per day when decontaminated sample equipment is used
 - "RB[Number]-[Date]" with the date being in a MMDDYY format
- Trip blanks
 - 1 per shipment of VOC samples



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- "TB[Number]-[Date]" with the date being in a MMDDYY format
- Temperature blank
 - 1 per cooler
 - Sample ID not required

2.4 Sample Collection/Documentation Procedures

Soil samples for laboratory analysis will typically be transferred with a spoon or scoop from the driller's sampling tube to a mixing container (e.g., stainless steel bowl). The spoon and bowl will be either disposable or decontaminated between each sampling interval. The soil will be homogenized with the larger material (e.g., gravel, debris) removed to the extent practical and placed in laboratory-provided sampling containers for transport to Pace, either by their courier or FedEx. The physical appearance of the sample will be documented, including texture, color, odor, presence of debris, and other notable observations.

When collecting samples for VOC analysis, Terra Core™ devices (or similar) will be used to disturb the soil as little as practical to avoid volatilization. Thus, the portion of the sample for VOC analysis will not be mixed in a bowl. However, a bowl will be used for the SVOC portion of the sample to remove the larger material.

If a concrete slab or asphalt is encountered, it will be cut and not included in the sample. For example, if a 6-inch slab exists on the ground surface at a location, the soil sample will be collected from below the slab (in this example, 0.5 ft-bgs) to the prescribed depth.

The borehole location ID will be used in each sample ID with the sampling depth appended to distinguish the various samples at each borehole. For instance at SW2-S07, the sample collected from 4 to 6 ft-bgs interval will have a sample ID of SW2-S07_04_06.

3.0 SCHEDULE

The field activities for soil sampling are scheduled to begin on Monday, February 3, 2014. The Golder field team and SJB will make arrangements for specific starting time on Monday. Mobilization to the Site will occur that day (that is, it does not need to occur on Sunday). The on-Site drilling and sampling activities are expected to take four days.

The schedule for delivery of the gINT® logs is flexible and is expected to be able to meet both the project needs and the individual field members schedule following the completion of the field activities.



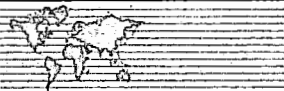
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4.0 OTHER ITEMS

Time and expenses for this scope of work will be charged to 073-6009-100 phase 521 with a brief description included.

The field activities will be performed under the *Health and Safety/Contingency Plan for the Remedial Investigations* (HASP). A hard copy of this document is stored on-Site in the Main Office building.

In the event of an emergency dial 911. Refer to the HASP Attachment 7 for other emergency contact numbers and the route to the hospital. Additional contact information is included in the table on the next page.



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Contact Information

Personnel	Title	Contact Number
Golder Staff		
Joe Gormley	Project Manager	Office: 856-793-2005 (Mt. Laurel) Cell: 610-220-2470 Home: 610-449-3975
Mark Haney	Project Director	Office: 603-668-0880 (Manchester, NH) Cell: 603-289-3969
Steve Anderson	Task Manager	Office: 856-935-6400 (Pittsburgh) Cell: 856-357-6665
Kristin Long	Field Team Lead	Office: 607-846-3887 Cell: 607-481-9337
Meagan Brown	Field Assistant	Office: 804-358-7900 (Richmond) Cell: 804-551-0129
Ben Greene	Field Support	Office: 724-935-6400 (Pittsburgh) Cell: 412-328-5810
Kristin Nuriye	Project Chemist	Office: 856-793-2005 (Mt. Laurel)
Kevin Dunsmore	Equipment Manager	Office: 856-793-2005 (Mt. Laurel) Cell: 856-373-6576
Personnel from other organizations		
Terry Barrett	Client Representative – Trinity Industries	Office: 214-589-8409 Cell: 972-898-1198
Bruce McCann or Bob Baker	South Plant Security	Plant: 724-588-7000 Cell: 724-456-1293 (Bruce) Cell: 724-815-7940 (Bob)
Timothy Reed	Laboratory – Pace	Reception: 724-850-5600 Desk: 724-850-5614
Joe Genovese	Driller – SBJ Services	716-649-8110
David Vollnogle	Surveyor – Howells & Baird	330-332-4834

Notes:

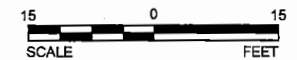
- 1) Primary field contact is Kristin.
- 2) Primary office contact is Steve.


LEGEND

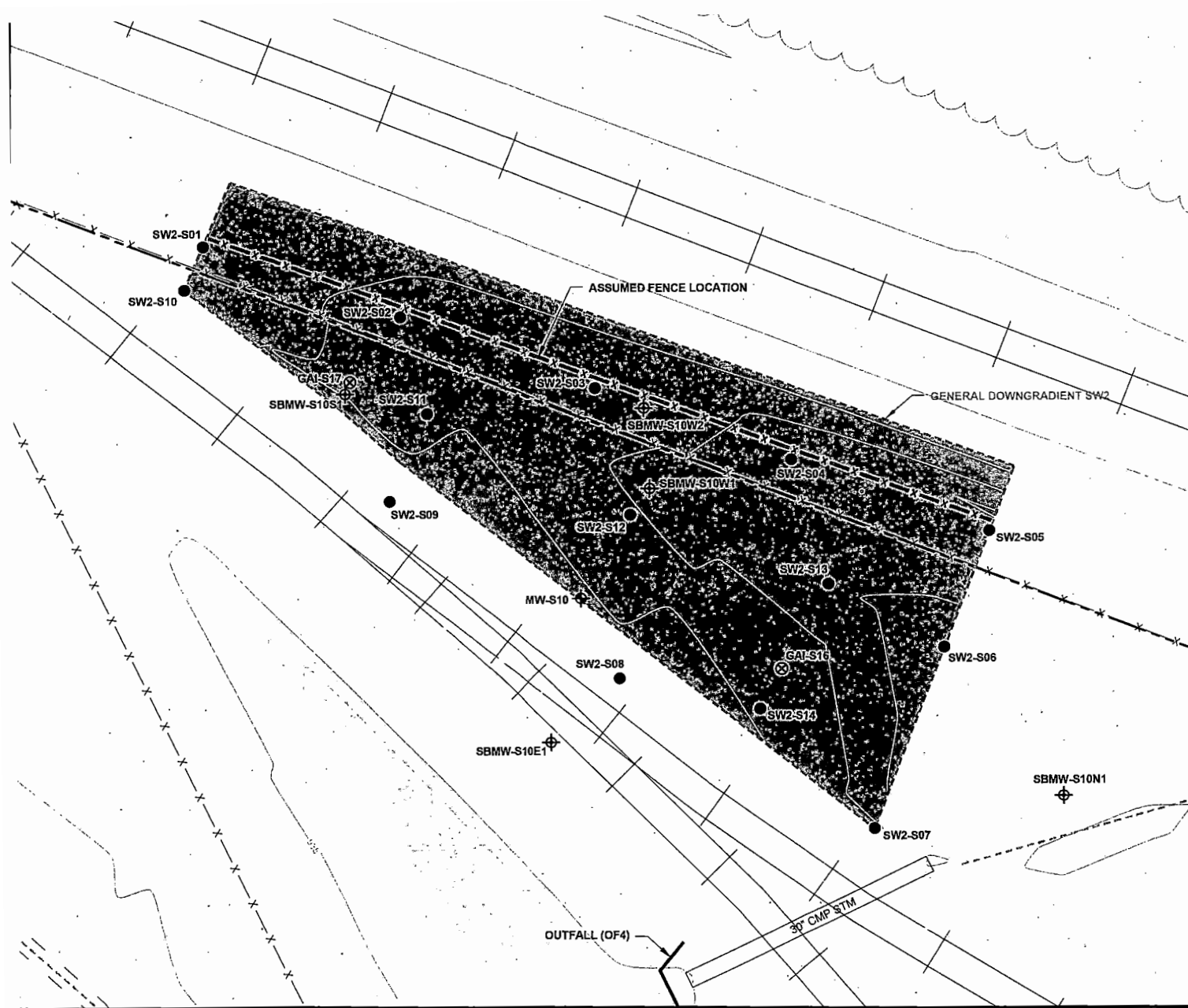
-  PROPERTY LINE
-  RAILS
-  CONTOUR LINE
-  DRAINAGE DITCH WITH INTERMITTENT FLOW
-  STREAM OR CREEK
-  EXTENT OF AREAS TO BE ADDRESSED BY EXCAVATION OF IMPACTED SOILS AND BACKFILLING
-  0-8 FT EXCAVATION (PRE-CONDITION SOILS FROM 0-2 FT, EXCAVATE AND RELOCATE TO DISPOSAL AREA)
-  RI GROUNDWATER MONITORING WELL LOCATION
-  RI SOIL BORING LOCATION
-  PDI SOIL SAMPLE LOCATION (SEE REFERENCE 3)
-  PROPOSED PRE-EXCAVATION SAMPLING LOCATION

REFERENCES

- 1.) BASE MAP COMPILED FROM DIGITAL CAD FILES 08-3820 GOLDER-N-S.dwg, TITLED "TOPOGRAPHIC SURVEY OF TRINITY INDUSTRIES, INC.," PROVIDED BY HOWELLS & BAIRD, INC, DATED JUNE 25, 2008 (REVISED JULY 15, 2009) AND 11-4417 A.dwg AND 11-4417 B.dwg, TITLED "TOPOGRAPHIC SURVEY FOR TRINITY INDUSTRIES, INC. - SOUTH PLANT," PROVIDED BY HOWELLS & BAIRD, INC, DATED JULY 2011.
- 2.) THE HORIZONTAL COORDINATES SHOWN HEREON ARE REFERENCED TO PENN DOT MONUMENTS AO-88 AND AO-85 (PENNSYLVANIA STATE PLANE COORDINATE SYSTEM - NAD83)
- 3.) PRE-DESIGN AND ADDITIONAL INVESTIGATION LOCATIONS WERE TAKEN FROM DIGITAL CAD FILE "08-3820 GOLDER-N-S 9-6-12," PROVIDED BY HOWELLS & BAIRD, INC, DATED SEPTEMBER 6, 2012.



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	APP																								
PROJECT																														
TRINITY INDUSTRIES, INC. - SOUTH PLANT HEMPFIELD TOWNSHIP, PA																														
TITLE																														
PROPOSED PRE-EXCAVATION SAMPLING LOCATIONS GENERAL DOWNGRADIENT SW2 AREA																														
<div style="display: flex; align-items: center;"><div style="text-align: center;"><p>Golder Associates CONSULTING</p></div><table border="1"><tr><td colspan="2">PROJECT No.</td><td>073-6009</td><td colspan="2">FILE No.</td><td>0736009-MISC05A</td></tr><tr><td>DESIGN</td><td>RSA</td><td>01/21/14</td><td>SCALE</td><td>AS SHOWN</td><td>REV. 0</td></tr><tr><td>CADD</td><td>RG</td><td>01/21/14</td><td colspan="3" rowspan="3">FIGURE 1</td></tr><tr><td>CHECK</td><td> </td><td> </td></tr><tr><td>REVIEW</td><td> </td><td> </td></tr></table></div>							PROJECT No.		073-6009	FILE No.		0736009-MISC05A	DESIGN	RSA	01/21/14	SCALE	AS SHOWN	REV. 0	CADD	RG	01/21/14	FIGURE 1			CHECK			REVIEW		
PROJECT No.		073-6009	FILE No.		0736009-MISC05A																									
DESIGN	RSA	01/21/14	SCALE	AS SHOWN	REV. 0																									
CADD	RG	01/21/14	FIGURE 1																											
CHECK																														
REVIEW																														



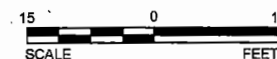


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- 940 --- CONTOUR LINE
- [Dashed Box] EXTENT OF AREAS TO BE ADDRESSED BY EXCAVATION OF IMPACTED SOILS AND BACKFILLING
- [White Box] 0-2 FT EXCAVATION
- [Light Gray Box] 0-4 FT EXCAVATION
- [Dark Gray Box] 0-6 FT EXCAVATION
- [Black Box] 0-6 FT TO BE PRECONDITIONED, EXCAVATED, AND RELOCATED TO DISPOSAL AREA 6-20 FT TO BE PRE-CONDITIONED IN PLACE
- [Dark Gray Box] 0-6 FT EXCAVATE AND DISPOSE OFF-SITE (VOC-IMPACTED MATERIALS)
- [Crosshair Symbol] RI GROUNDWATER MONITORING WELL LOCATION
- [Circle with Crosshair Symbol] RI SOIL BORING LOCATION
- [Circle with X Symbol] PDI SOIL SAMPLE LOCATION (SEE REFERENCE 3)
- [Solid Circle Symbol] PROPOSED PRE-EXCAVATION SAMPLING LOCATION

REFERENCES

- 1.) BASE MAP COMPILED FROM DIGITAL CAD FILES 08-3820 GOLDER-N-S.dwg, TITLED "TOPOGRAPHIC SURVEY OF TRINITY INDUSTRIES, INC.," PROVIDED BY HOWELLS & BAIRD, INC., DATED JUNE 25, 2008 (REVISED JULY 15, 2009) AND 11-4417 A.dwg AND 11-4417 B.dwg, TITLED "TOPOGRAPHIC SURVEY FOR TRINITY INDUSTRIES, INC. - SOUTH PLANT," PROVIDED BY HOWELLS & BAIRD, INC., DATED JULY 2011.
- 2.) THE HORIZONTAL COORDINATES SHOWN HEREON ARE REFERENCED TO PENN DOT MONUMENTS AO-86 AND AO-85 (PENNSYLVANIA STATE PLANE COORDINATE SYSTEM - NAD83)
- 3.) PRE-DESIGN AND ADDITIONAL INVESTIGATION LOCATIONS WERE TAKEN FROM DIGITAL CAD FILE "08-3820 GOLDER-N-S 9-6-12," PROVIDED BY HOWELLS & BAIRD, INC., DATED SEPTEMBER 8, 2012.



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RWV
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TRINITY INDUSTRIES, INC. - SOUTH PLANT HEMPFIELD TOWNSHIP, PA						
TITLE						
PROPOSED PRE-EXCAVATION SAMPLING LOCATIONS FORMER PICKLING AREA						
PROJECT No. 073-6009 FILE No. 0736009-MISC558						
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CHECK						
REVIEW						



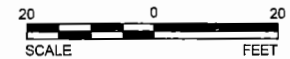
FIGURE 2

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	CONTOUR LINE
	EXISTING FENCE
	DRAINAGE DITCH WITH INTERMITTENT FLOW
	STREAM OR CREEK
	EXTENT OF AREAS TO BE ADDRESSED BY EXCAVATION OF IMPACTED SOILS AND BACKFILLING
	EXTENT OF DISPOSAL AREA TO BE CAPPED
	0-7 FT PRE-CONDITION IN PLACE
	PDI SOIL SAMPLE LOCATION (SEE REFERENCE 3)
	PROPOSED PRE-EXCAVATION SAMPLING LOCATION

REFERENCES

- 1.) BASE MAP COMPILED FROM DIGITAL CAD FILES 08-3820 GOLDER-N-S.dwg, TITLED "TOPOGRAPHIC SURVEY OF TRINITY INDUSTRIES, INC.," PROVIDED BY HOWELLS & BAIRD, INC., DATED JUNE 25, 2008 (REVISED JULY 15, 2008) AND 11-4417 A.dwg AND 11-4417 B.dwg, TITLED "TOPOGRAPHIC SURVEY FOR TRINITY INDUSTRIES, INC. - SOUTH PLANT," PROVIDED BY HOWELLS & BAIRD, INC., DATED JULY 2011.
- 2.) THE HORIZONTAL COORDINATES SHOWN HEREON ARE REFERENCED TO PENN DOT MONUMENTS AQ-86 AND AQ-85 (PENNSYLVANIA STATE PLANE COORDINATE SYSTEM - NAD83)
- 3.) PRE-DESIGN AND ADDITIONAL INVESTIGATION LOCATIONS WERE TAKEN FROM DIGITAL CAD FILE "08-3820 GOLDER-N-S 8-6-12," PROVIDED BY HOWELLS & BAIRD, INC., DATED SEPTEMBER 6, 2012.



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	REV
PROJECT: TRINITY INDUSTRIES, INC. - SOUTH PLANT HEMPFIELD TOWNSHIP, PA						
TITLE: PROPOSED PRE-EXCAVATION SAMPLING LOCATIONS FORMER DISPOSAL AREA						
<div style="display: flex; align-items: center;"> <div> <p>Golder Associates Mt. Laurel, New Jersey</p> </div> </div>						
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DESIGN	RSA	01/27/14	SCALE	AS SHOWN	REV.	0
CADD	RG	01/27/14				
CHECK						
REVIEW						

FIGURE 3